



Presentation of PhD research project

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Brief Presentation

- Hydraulic engineer (2012, EHTP-Casablanca)
- Research master at Ecole des Ponts ParisTech
- Interested with the management of water
- A Final project study at LEESU-Ecole des Ponts
- Multi-Hydro model
- Hydrologic and numerical modeling

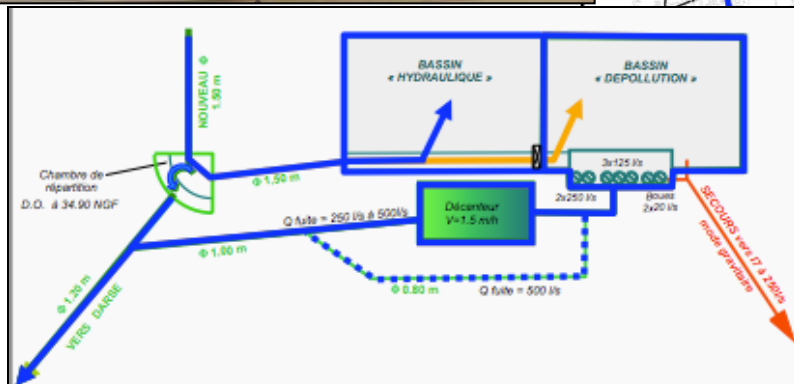
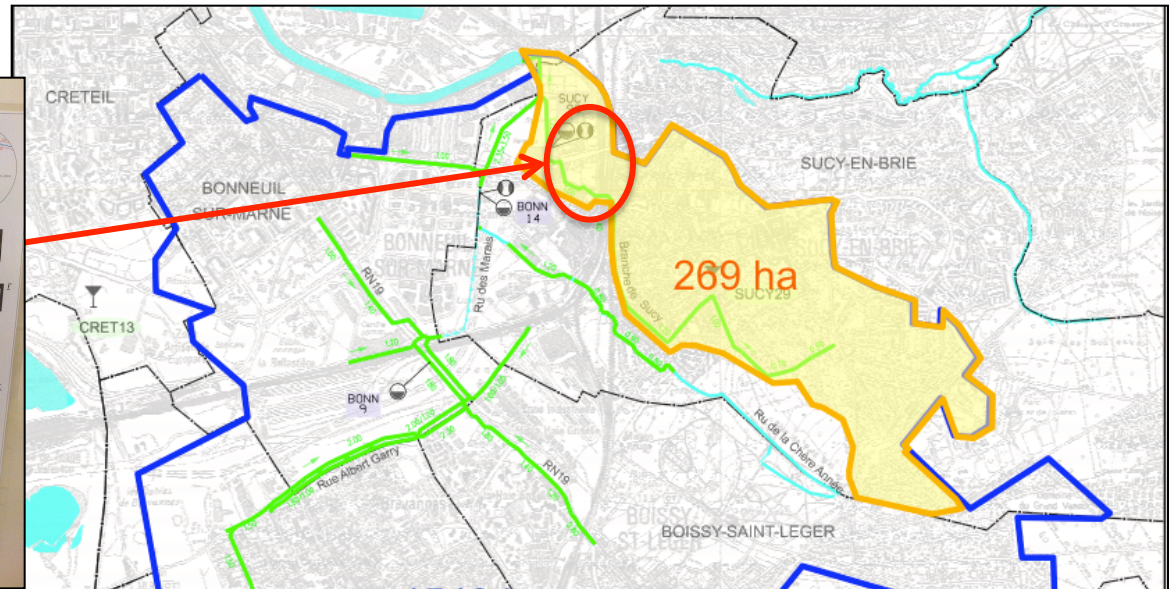
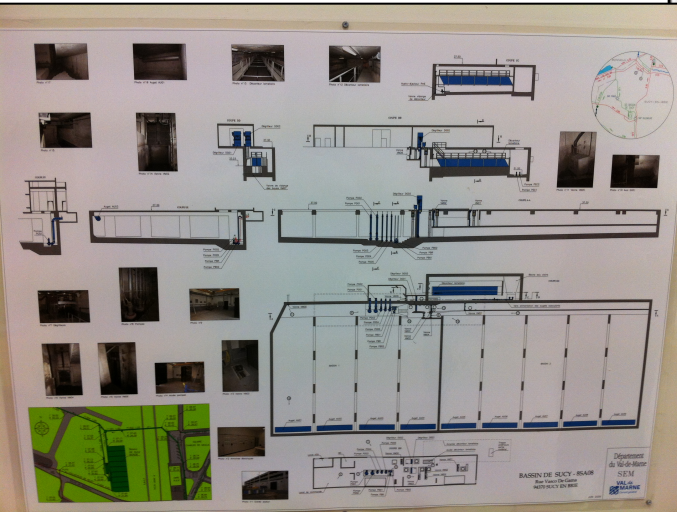
Brief Presentation

- **Research topic:** Use of rainfall data acquired through a band X radar for predictive management of storm-water storage basins
- **Start of PhD:** September 2012
- **WP:** Workpage4
- **Case study:** Sucy-en-Brie

Result of a collaboration between the
CG94 and ENPC

Case study

Sucy Retention basin

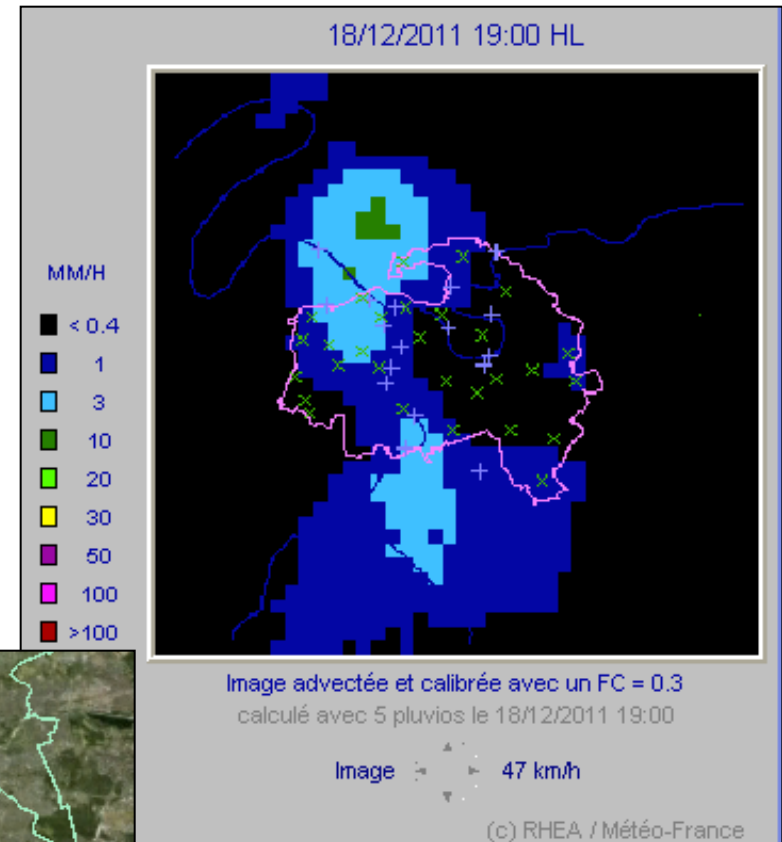
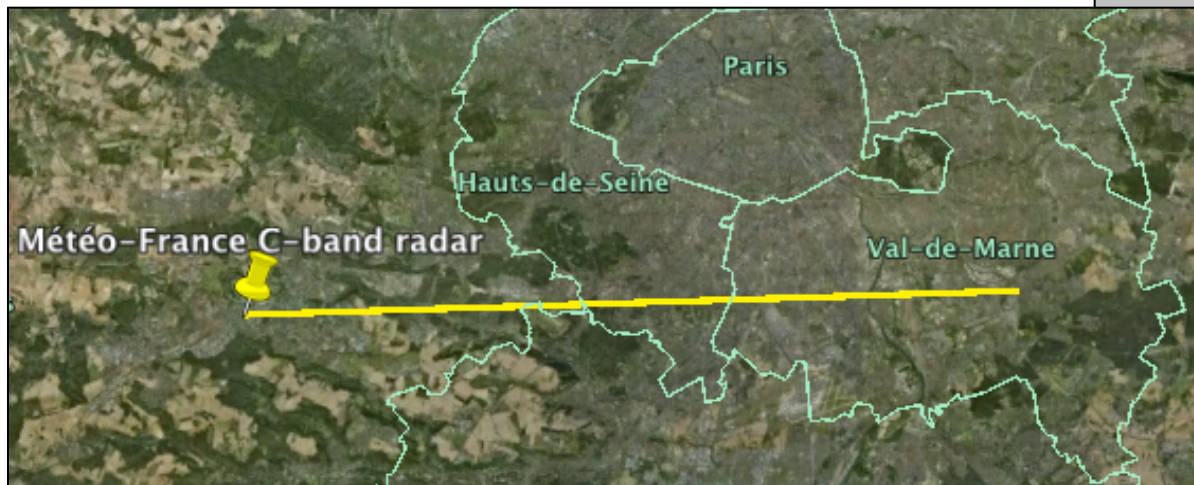


- 1 $\leq V \leq V_{6 \text{ mois}}$: EP dirigées vers le compartiment dépollution
- 2 $34.90 \text{ NGF} \leq Z \leq 35.45 \text{ NGF}$: EP dirigées vers le collecteur départemental EP (DARSE)
- 3 Ligne d'eau $> 35.45 \text{ NGF}$: EP dirigées vers le compartiment stockage hydraulique.



Case study

- The CALAMAR system use a C-band radar data
- The system need a real time calibration



✓ Elaborate a new warning indicators using the X-band radar data

Research plan(First year)

- bibliographic research, Analyzing the historic warning generated by CALAMR system, data collection
- Implementation of Multi-Hydro model in the case study domain
- Compare between canoe model (semi-distributed model) and Multi-hydro model(fully distributed model)

Surface module

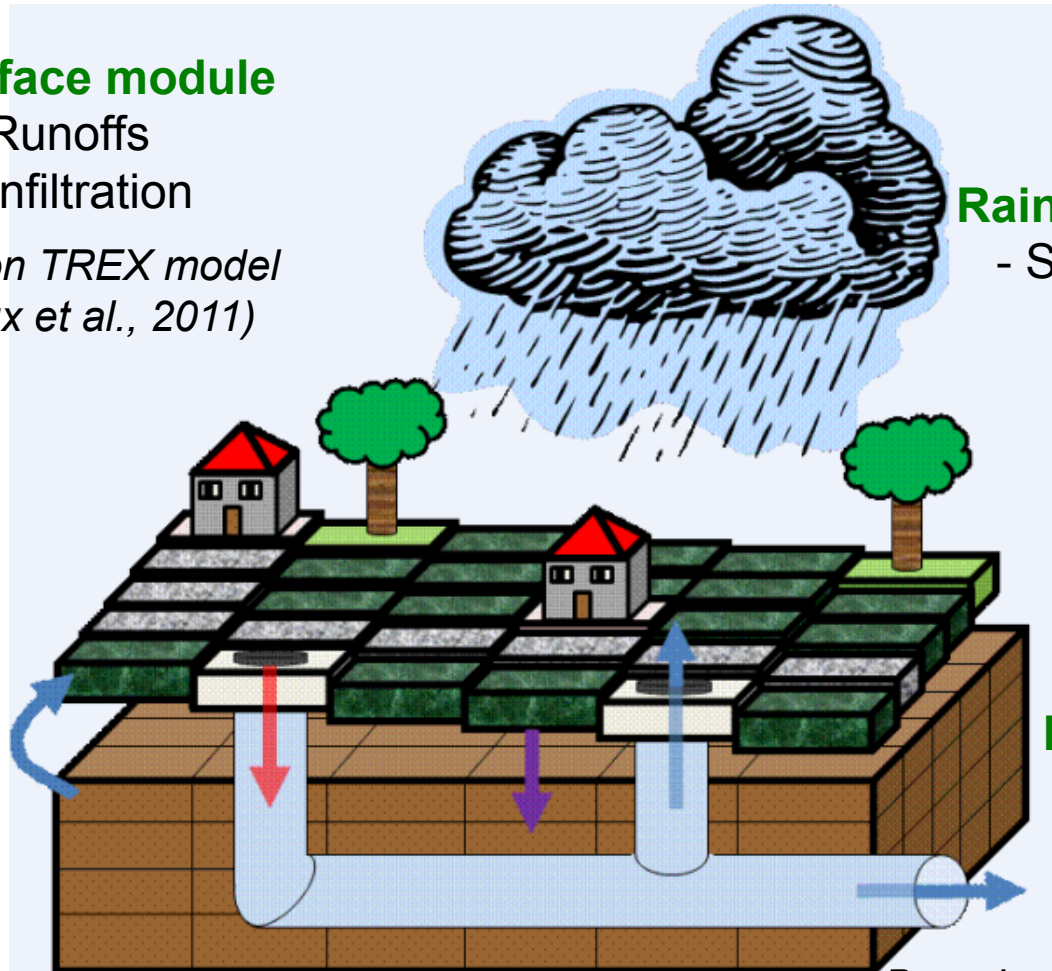
- Runoffs
- Infiltration

*Based on TRES model
(Velleux et al., 2011)*

Rainfall module

- Spatio-temporal rainfall

*Based on Multifractal cascades
(Schertzer and Lovejoy, 1987)*



Drainage module

- Sewer flow
(free surface, and loaded)
- Overflow

Based on SWMM model (Rossman, 2005)

Soil module

- Vertical flow in the non-saturated area
- Saturation during a rainfall event

Based on VS2DT model (Lapalla et al., 1987)